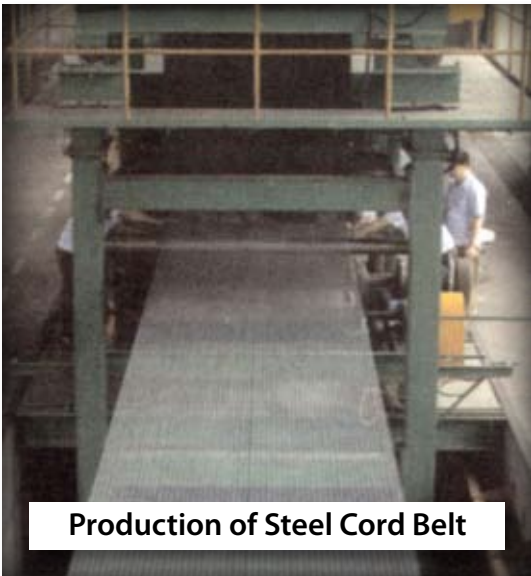


# MANUFACTURING PROCESS



# CONVEYOR BELT CONSTRUCTION



The standard Rubber Conveyor Belt consists of a Rubber Cover, Carcass and Rubber Skim Coat. Reinforced fabric is used for extra protection.

**RUBBER COVERS** in accordance with BS 490, DIN 22102 & SABS 1173-2006.

Covers of natural or synthetic rubber are designed to protect the carcass from abrasion, impact, deterioration and other injurious influences. They are compounded to meet particular service conditions such as abrasion, oil, heat, fire, chemical resistant, antistatic etc.



## CARCASS

The carcass of a belt maintains the belt tension and supplies structural strength, it does all the work in supporting the load. The carcass consists of multiple plies of rubber impregnated fabric, bonded together with friction and skim coats. The fabrics most commonly used are nylon and polyester.

## RUBBER SKIM COATS

An extra layer compounded between plies that increase flex life and creates a more elastic link, to which the fabric anchors firmly, so that plies flex without separation. Generous inter-ply skim rubber aids impact absorption.

## BREAKER FABRIC

A special woven fabric placed between the cover and the carcass is to improve impact resistance, load support and tearing.

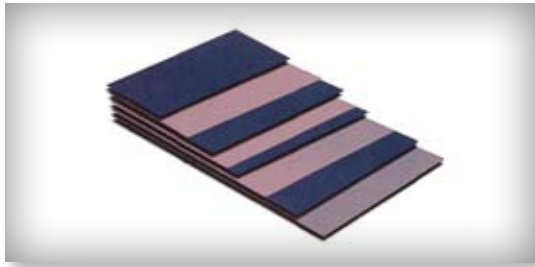


4 Roller Calendar

# MULTI-PLY CONVEYOR BELT

## GENERAL PURPOSE CONVEYOR BELT

This image shows a typical conveyor belt construction conforming with international specifications. The all synthetic fabric in the carcass is skim coated with a cushioning layer of rubber.



Two cover qualities are available:

- 1) Rubber covers suitable for the conveyance of abrasive materials under average working conditions.
- 2) Rubber covers suitable for the conveyance of extremely sharp and abrasive materials under severe working conditions.

Conveyor belting is classified according to the minimum full thickness breaking strength of the finished belting in kilo-newtons per meter of width in accordance with BS.490, DIN22102.

Belt class for number of plies				Belt Modulus kN/m	Full thickness breaking strength			
2	3	4	5		Class	Longitudinal direction kN/m width minimum	Transverse direction kN/m width minimum	Recommended maximum operating tension (kN/m)
160				880	160	160	63	16.0
200				1111	200	200	80	20.0
250	250			1390	250	250	100	25.0
315	315	315		1750	315	315	125	21.5
400	400	400	400	2220	400	400	160	40.0
500	500	500	500	2780	500	500		50.0
630	630	630	630	3500	630	630		63.0
800	800	800	800	4440	800	800	not specified	80.0
	1000	1000	1000	5550	1000	1000		100.0
	1250	1250	1250	6940	1250	1250		125.0
		1600	1600	8890	1600	1600		160.0
					2000	2000		200.0
					2500	2500		250.0

COVER MASS									
Cover gauge (mm)	1.6	2.25	3.2	4.0	5.0	6.3	7.0	8.0	10.0
Mass of cover (kg/m <sup>2</sup> ) - Grade 1	1.82	2.28	3.65	4.56	5.70	7.18	7.89	9.12	11.40
Mass of cover (kg/m <sup>2</sup> ) - Grade 2	1.78	2.22	3.55	4.44	5.55	6.99	7.77	8.88	11.10

## COVER RATIO

The ratio between the top cover and bottom cover gauge must be less than the maximum in the table to prevent belt curl.

Carcass Thickness (mm)	Maximum Ratio
up to 3.0	2.0 : 1
3.1 - 5.0	3.5 : 1
5.1 - 8.0	4.0 : 1
8.1 - 13.0	5.0 : 1

## PVC/PVG SOLID WOVEN CONVEYOR BELT

This product consists of solid woven fabric dipped in PVC paste and adding PVC or Nitrile covers which are combined together by vulcanizing, The belt has good flame retardant and anti-static properties, with high tensile strength in proportion to weight, good integrity and no delamination, excellent impact and rip resistance. The belt is suited to service in the conditions needing fire resistant and antistatic properties such as Coal mines, Power stations, Chemical and Metallurgy industries. The following standards are applied to this belting: DIN22109, AS4606, BS3289, SABS 971-2003.

PVC stands for the solid woven belt with PVC cover. Non pressed PVC type is suitable for applications in dry conditions at a slope angle of no greater than 16 degrees. The belt is non-pressed with cover no more that 0.8mm

PVG stands for solid woven belt with PVG cover (Nitrile Rubber), Nitrile type is covered with covers mainly composed of rubber, which further improves the trough-ability, resistance to moisture and slip, resistance to low temperature, elongation and wear resistance of the belt. Both top and bottom covers are PVG, or PVC on the bottom cover.

### PHYSICAL PROPERTIES

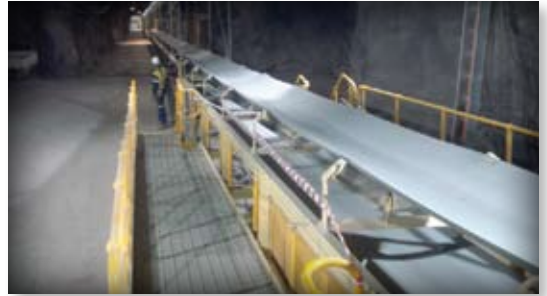
Item	Min. Tensile strength (N/mm)		Carcass thickness (mm)	Carcass weight (kg/m <sup>2</sup> )	Cover grade and recommended thickness (mm)		Belt width (mm)	Recommended min pulley diameter (mm)
	Warp	Weft			PVC	PVG		
680/1	680	265	6.5	8.5	1.0 + 1.0	1.5 + 1.5		400
800/1	800	320	6.9	9	1.0 + 1.0	1.5 + 1.5		500
1000/1	1000	350	7.5	9.7	1.0 + 1.0	2 + 1.5		630
1250/1	1250	350	8.5	11	1.0 + 1.0	2 + 1.5		750
1400/1	1400	350	9	11.5	1.0 + 1.0	2.5 + 1.5		750
1600/1	1600	450	9.5	12.3	3 + 2	2.5 + 1.5		800
1800/1	1800	450	10	13	3 + 2	3 + 2	900	800
2000/1	2000	450	10.5	13.6	3 + 2	4 + 2	1500	1000
2500/1	2500	450	12.5	14.5	3 + 2	5 + 3		1200
3100/1	3100	450	17	17				1500
3500/1	3500	500	20	19				
4000/1	4000	500	25	22				

Mechanical properties of cover (SABS 971-2003)			
Item	Tensile strength Mpa (min)	Elongation at break % (min)	Abrasive wear mm <sup>3</sup> (min)
PVG	9	350	200
PVC	9	300	200

Additional Physical properties					
Properties Grade	Tensile strength at break (N/mm) >=		Elongation at break (%) >=		Tear strength KN min
	Longitudinal	Transverse	Longitudinal	Transverse	
680S	680	265	15	18	1.0
800S	800	280	15	18	1.2
1000S	1000	300	15	18	1.6
1250S	1250	350	15	18	1.6
1400S	1400	350	15	18	1.6

## APPLICATIONS

Fireflex conveyor belt is designed for the best service applications of the Coal mining industries. It is suitable for Mining, Power generation, and Coal cleaning plants. Fireflex conveyor belts meet all the requirements of fire protection standards, i.e. SABS 971, DIN 22102 and has improved fire resistance (DIN 22103) and antistatic (DIN 22104) properties.



## FEATURES

The carcass of the belt is composed of several plies of EP (Polyester, Nylon) fabrics separated by a fire resistant inter-layer and covered with fire resistant rubber covers. Rubber covers have anti-static properties and prevent the possibility of a fire spreading, or an explosion in the mine galleries due to the belt.



## ADVANTAGES

- Longer belt life.
- No carcass failure.
- Superior clip joint strength.
- The use of conventional multi-ply splicing technics improves splice life.
- Reduced pulley sizes

Reference	Pulleys on which belt wrap is more than 60° of rated tension			Belt wrap is less than 60° of rated tension		Recommended max operating tension kN/m
	60% - 100%	40% - 60%	40%	60% - 100%	60%	
630/3	400	315	250	315	250	63
800/3	400	315	250	315	250	80
1000/3	500	400	315	400	315	100
1250/4	630	500	400	500	400	125
1600/4	800	630	500	630	500	160

# THERMAL HEAT CONVEYOR BELT

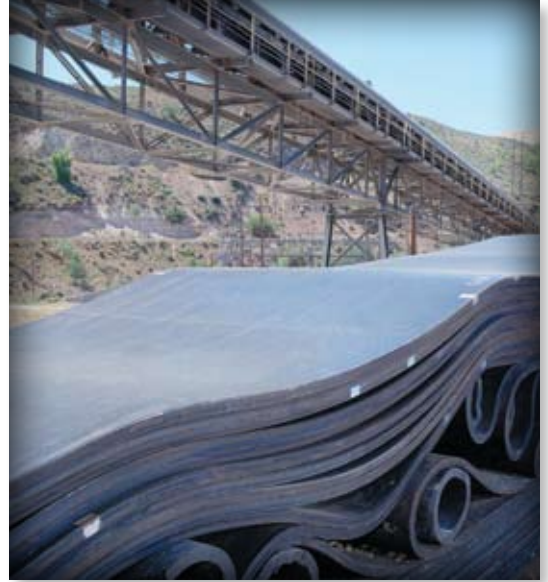


## APPLICATIONS

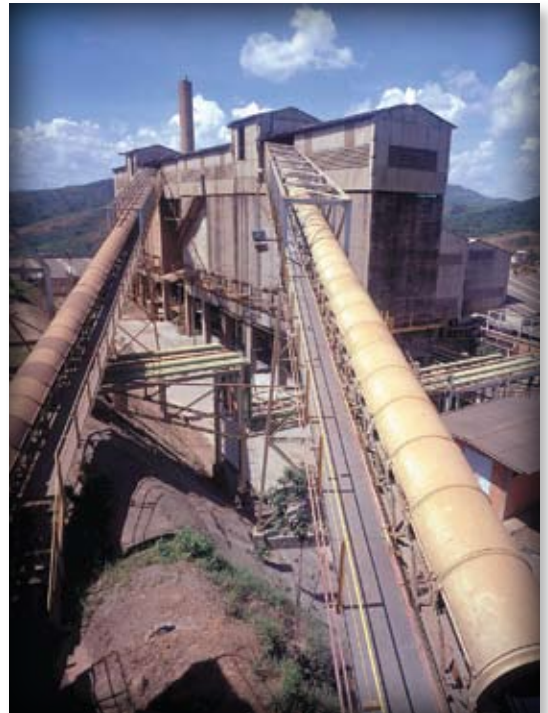
Suitable for conveying of hot material. Different temperature requirements are available. Most commonly used for conveyance of coke, cement clinker, burnt lime, special chemical products or other powdery materials.

## FEATURES

Constant temperatures up to 400°C.  
 Excellent wear resistance.  
 Resists heat-crack or softening  
 High adhesion values



	Type	Compound of cover rubber	Temperature range of minerals (°C)	Temperature range of belt surface (°C)	Application
Low to Medium Temperature	HR-100	SBR	Lump 70°C - 200°C Lump 70°C - 150°C	150°C	For low to medium temperature abrasive materials requiring high wear resistance (coke, sintered products etc.)
High Temperature	HR150	EPDM	100°C - 400°C	150°C	For higher temperature application not requiring high wear resistance. Often recommended for fine powders (sintered ore products, cement clinker, hot lime etc.)



# PIPE CONVEYOR BELT



## APPLICATIONS

Pipe conveyor belt is a new type of conveyor belt which uses fabric, steel cord and bent carcasses with high elastic, high anti-abrasive and high strength rubber as working surface. They are mainly used in conveying powdery and granular materials, that are polluting to the environment. When working, the rubber belt changes its form from a U shape to a pipe shape, folding materials and realizing the process of enclosed conveying.



## CHARACTERISTICS

- Enclosed conveying of materials, protecting both the materials and the environment.
- Steep angled conveying, the conveying angle can reach 30 degrees usually.
- Conveying line can be arranged according to the curve of space.



Pipe diameter (mm)	Belt width (mm)	Breaking strength (N/mm)	Fabric plies	Cover rubber thickness (mm)
100	430	250	1	3.0 x 1.5
150	600	160	2	3.0 x 2.0
		315	2	3.0 x 2.0
200	700	315	2	3.0 x 2.0
		500	2	3.0 x 2.0
		315	2	5.0 x 2.0
		500	2	5.0 x 2.0
250	1000	400	2	3.0 x 2.0
		500	2	3.0 x 2.0
		400	2	5.0 x 2.0
		500	2	5.0 x 2.0
300	1100	400	2	3.0 x 2.0
		500	2	3.0 x 2.0
		400	2	5.0 x 2.0
		500	2	5.0 x 2.0
350	1300	630	3	5.0 x 2.0
		800	4	5.0 x 2.0
400	1600	800	4	5.0 x 2.0
		1000	5	5.0 x 2.0

# CHEVRON CONVEYOR BELT

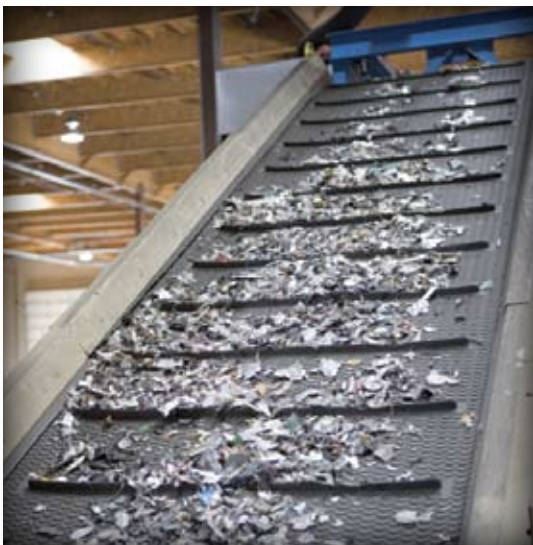
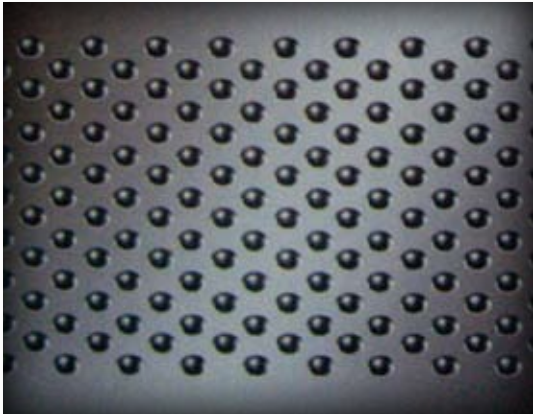


## APPLICATIONS

Chevron conveyor belts can convey powdered, granulated and small lump materials at a gradient of up to 40 degrees. It can also convey packaged materials.

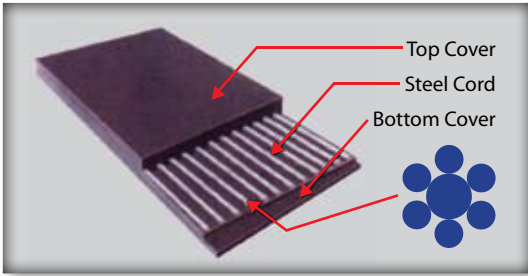
## SHAPE AND CHARACTERISTICS

- We have different pattern shapes, such as "U" pattern and "V" pattern. Other patterns are also available.
- Patterned conveyor belts are composed of a belt carcass and a pattern. The pattern shape and height (depth) may be different for the type of gradient of the material being conveyed.





# STEEL CORD CONVEYOR BELT



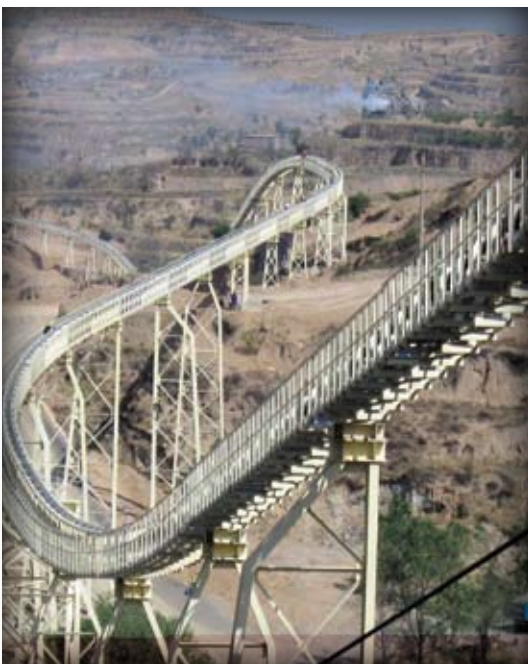
## APPLICATIONS:

Steel cord conveyor belts are widely used in high strength, long distance and heavy load transportation of material, and they are also used in high strength and short distance transportation of materials on special occasions.



## FEATURES:

- High tensile strength. The belts are suitable for large span, long distance transportation of materials.
- Low elongation in use: The belts only need a very short take-up stroke distance.
- Small diameter of drive pulley: The belt body has a layer of longitudinally arranged steel cords as its skeleton, and thus is resistant to flex fatigue. Therefore, drive pulley of smaller diameter can be used to make equipment smaller.
- Excellent penetration of rubber between the individual cord filaments, ensures superior adhesion.
- Even tension of steel cords: Out of our advance techniques in manufacturing, the steel cords are evenly arranged and carry equal tension during the manufacturing process.
- Good trough-ability: As the belts body has no transverse reinforcement, it is easy to form a deep trough, so the belts can load more materials and prevent material spillage.



# STEEL CORD - STD SPECIFICATIONS

ST Number	Breaking Strength	Maximum Tension Rating	Standard Cord Diameter	Standard Cord Pitch	Standard Cover Thickness		In case of Standard Cover	
					Top Cover	Bottom Cover	Belt Thickness	Belt Weight
	lbs / in kg / cm	lbs / in kg / cm	in mm	in mm	in mm	in mm	in mm	lbs / ft <sup>2</sup> kg / m <sup>2</sup>
ST-500	2,800 500	400 71.4	0.087 2.2	0.394 10	0.197 5	0.197 5	0.48 12.2	3.34 16.3
ST-600	3,360 600	480 85.7	0.096 2.45	0.394 10	0.197 5	0.197 5	0.49 12.5	3.46 16.9
ST-630	3,530 630	504 90	0.098 2.5	0.394 10	0.197 5	0.197 5	0.40 12.5	3.52 17.2
ST700	3,920 700	560 100	0.106 2.7	0.394 10	0.197 5	0.197 5	0.5 12.7	3.6 17.6
ST-800	4,480 800	640 114.2	0.114 2.9	0.394 10	0.197 5	0.197 5	0.508 12.9	3.75 18.3
ST-900	5,040 900	720 128.5	0.122 3.1	0.394 10	0.197 5	0.197 5	0.516 13.1	3.67 17.9
ST-1000	5,600 1000	800 157.1	0.142 3.6	0.472 12	0.197 5	0.197 5	0.535 13.6	3.93 19.2
ST-1100	6,160 1,100	880 157.1	0.15 3.8	0.472 12	0.197 5	0.197 5	0.543 13.8	4.01 19.6
ST-1200	6,720 1,200	960 171.4	0.156 3.95	0.472 12	0.197 5	0.197 5	0.551 14	4.14 20.2
ST-1250	7,000 1,250	1,000 178.6	0.157 4	0.472 12	0.197 5	0.197 5	0.551 14	4.2 20.5
ST-1300	7,280 1,300	1,040 185.7	0.161 4.1	0.472 12	0.197 5	0.197 5	0.555 14.1	4.27 20.8
ST-1400	7,840 1,400	1,120 200	0.169 4.3	0.472 12	0.197 5	0.197 5	0.563 14.3	4.39 21.4
ST-1500	8,400 1,500	1,200 214.3	0.176 4.4	0.472 12	0.236 6	0.236 6	0.646 16.4	5 24.4
ST-1600	8,960 1,600	1,280 228.6	0.181 4.6	0.472 12	0.236 6	0.236 6	0.654 16.6	5.22 25.5
ST-1700	9,520 1,700	1,360 242.8	0.189 4.8	0.472 12	0.236 6	0.236 6	0.661 16.8	5.32 26
ST-1800	10,080 1,800	1,440 257.1	0.197 5	0.472 12	0.236 6	0.236 6	0.669 17	5.49 26.8
ST-1900	10,640 1,900	1,520 271.4	0.201 5	0.472 12	0.236 6	0.236 6	0.673 17.1	5.51 26.9
ST-2000	11,200 2,000	1,600 285.7	0.205 5.2	0.472 12	0.236 6	0.236 6	0.677 17.2	5.72 27.9
ST-2100	11,760 2,100	1,680 300	0.22 5.6	0.591 15	0.276 7	0.276 7	0.772 19.6	6.1 29.8
ST-2200	12,320 2,200	1,760 314.2	0.228 5.8	0.591 15	0.276 7	0.276 7	0.78 19.8	6.26 30.5
ST-2300	12,880 2,300	1,840 328.5	0.232 5.9	0.591 15	0.276 7	0.276 7	0.783 19.9	6.33 30.9
ST-2400	13,440 2,400	1,920 342.8	0.236 6	0.591 15	0.276 7	0.276 7	0.787 20	6.45 31.5
ST-2500	14,000 2,500	2,000 357.1	0.244 6.2	0.591 15	0.276 7	0.276 7	0.795 20.2	6.62 32.3

# STEEL CORD - STD SPECS - *continued*



ST Number	Breaking Strength	Maximum Tension Rating	Standard Cord Diameter	Standard Cord Pitch	Standard Cover Thickness		In case of Standard Cover	
					Top Cover	Bottom Cover	Belt Thickness	Belt Weight
					lbs / in kg / cm	lbs / in kg / cm	in mm	in mm
ST-2600	14,560 2,600	2,080 371.4	0.248 6.3	0.591 15	0.276 7	0.276 7	0.799 20.3	6.7 32.7
ST-2700	15,120 2,700	2,160 385.7	0.248 6.4	0.591 15	0.276 7	0.276 7	0.803 20.4	6.76 33
ST-2800	17,680 2,800	2,240 400	0.26 6.6	0.591 15	0.276 7	0.276 7	0.811 20.6	6.95 33.9
ST2900	16,240 2,900	2,320 414.2	0.26 6.6	0.591 15	0.276 7	0.276 7	0.819 20.8	7.11 34.7
ST-3000	16,800 3,000	2,400 428.5	0.27 6.9	0.591 15	0.315 8	0.276 7	0.862 21.9	7.46 36.4
ST-3150	17,640 3,150	2,520 450	0.28 7.1	0.591 15	0.315 8	0.276 7	0.87 22.1	7.66 37.4
ST-3500	19,600 3,500	2,800 500	0.29 7.5	0.591 15	0.315 8	0.276 7	0.866 22.5	8.06 39.4
ST-4000	22,400 4,000	3,100 571.4	0.31 8.1	0.591 15	0.315 8	0.276 7	0.909 23.1	8.65 42.2
ST-4500	25,200 4,500	3,600 642.8	0.331 8.4	0.591 15	0.315 8	0.276 7	0.921 23.4	9.24 45.1
ST-5000	28,000 5,000	4,000 714.2	0.354 9	0.591 15	0.315 8	0.276 7	0.944 24.0	9.93 48.5

**ST NUMBER:** Guaranteed tensile strength of steel cord in kg x no. of steel cords  
Belt width in cm

ST Number is expressed according to the tensile strength per cm width of the belt. Tensile strength varies according to cord diameter and cord pitch and thus various specification of belt can be made. Standard specifications are constructed most rationally correlative to all conditions of impact resistance, splicing operation, cost etc.

In this table, max tension rating indicates those in good operating conditions, and should be changed in accordance with individual specific operating conditions.

For designing of Steel cord conveyor belt, we are prepared to make belts of special specification upon your inquiry.



# MINIMUM PULLEY DIAMETERS



Reference	Pulleys on which belt wrap is more than 60° of rated tension			Belt wrap is less than 60° of rated tension	
	60% - 100%	40% - 60%	40%	60% - 100%	60%
160/2	315	250	200	250	160
200/2	315	250	200	250	160
250/2	315	250	200	250	160
250/3	400	315	250	315	200
315/2	315	250	200	250	160
315/3	400	315	250	315	200
315/4	630	500	400	400	315
400/2	315	250	200	250	200
400/3	500	400	315	400	250
400/4	630	500	400	500	315
400/5	630	500	400	500	400
500/2	400	315	250	315	200
500/3	500	400	315	400	250
500/4	630	500	400	400	250
500/5	800	630	500	500	400
630/2	500	400	315	400	250
630/3	630	500	400	500	315
630/4	630	500	400	500	315
630/5	800	630	500	500	400
800/2	630	500	400	500	315
800/3	630	500	400	500	315
800/4	800	630	500	630	400
800/5	800	630	500	630	400
1000/3	800	630	500	630	400
1000/4	800	630	500	630	500
1000/5	1000	800	630	630	500
1250/3	1000	800	630	630	500
1250/4	1000	800	630	800	500
1250/5	1000	800	630	800	500
1600/4	1250	1000	800	1000	630
1600/5	1400	1250	1000	1000	800

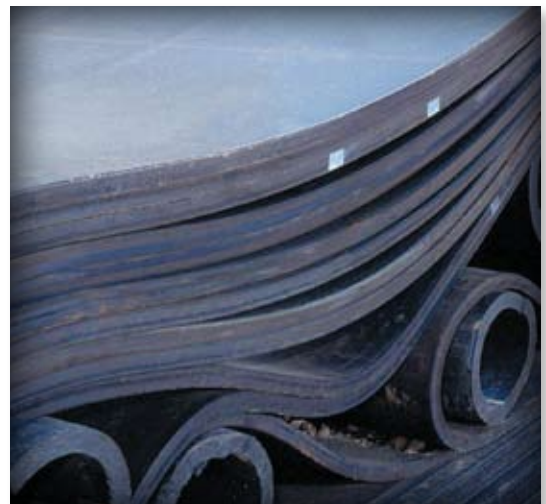


# CARCASS THICKNESS



MASS OF BELT CARCASS IN KG/²					
Class / Type	2 Ply	3 Ply	4 Ply	5 Ply	6 Ply
EP 200	2.9				
EP 250	2.1	2.79	3,72		
EP 315	2.4	3.0	4.0		
EP 400	2.6	3.2	4.0	4.62	
EP 500	3.1	3.9	4.0	5.0	
EP 630	3.4	3.6	4.8	5.3	6.0
EP 800	5.0	4.7	5.2	6.5	6.7
EP 1000		5.1	6.2	6.5	7.8
EP 1250		7.5	6.8	8.1	8.4
EP 1600			10.0	10.8	10.2
EP 2000			12.4	12.5	12.9

CARCASS THICKNESS				
Class	Plies			
	2	3	4	5
EP 160	2.0			
EP 200	2.0			
EP 250	2.0	3.0		
EP 315	2.3	3.0		
EP 400	2.6	3.2	4.0	
EP 500	2.9	3.5	4.0	5.0
EP 630	3.2	3.6	4.6	5.2
EP 800	-	4.4	5.2	5.75
EP 1000	-	4.9	5.8	6.5
EP 1250	-	5.3	6.4	7.3
EP 1600	-	-	7.4	8.75
EP 2000	-	-	-	9.3



\* 315 / 3 Ply 3,2 + 1,6 +3 = 7,8mm

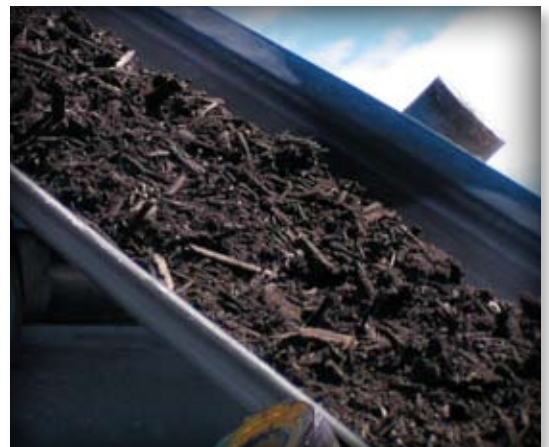
## STANDARD COVERS

1.6mm; 2mm; 2,5mm; 3,2mm; 4mm;  
5mm; 6,3mm; 8mm; 10mm

# EMPTY BELT TROUGHING



Reference	Recommended minimum width (mm) for correct load support		
	Trough 20°	Trough 35°	Trough 45°
160/2	300	350	350
200/2	300	350	350
250/2	300	350	400
250/3	350	350	400
315/2	300	400	400
315/3	350	400	350
315/4	400	450	500
400/2	350	400	450
400/3	400	400	450
400/4	450	450	500
400/5	400	500	500
500/2	400	400	450
500/3	400	450	500
500/4	450	450	500
500/5	450	750	750
630/2	400	450	450
630/3	450	500	600
630/4	450	500	750
630/5	600	750	750
800/2	400	500	500
800/3	450	500	600
800/4	450	750	750
800/5	600	750	750
1000/3	500	600	600
1000/4	500	750	750
1000/5	750	900	900
1250/3	600	750	750
1250/4	600	750	900
1250/5	750	900	900
1600/4	600	750	900
1600/5	750	900	900



# LOAD SUPPORT



Recommended maximum width (mm) for correct load support					
Duty	Light duty	Light to medium	Medium duty	Heavy duty	Extra heavy duty
Reference	Density up to 800 kg/m <sup>3</sup> and lumps up to 20mm	Density up to 1200 kg/m <sup>3</sup> and lumps up to 50mm	Density up to 1600 kg/m <sup>3</sup> and lumps up to 100mm	Density up to 2400 kg/m <sup>3</sup> and lumps up to 250mm	Density up to 2400 kg/m <sup>3</sup> and lumps up to 250mm
160/2	600	450	300	Not recommended	Not recommended
200/2	750	600	450	Not recommended	Not recommended
250/2	900	750	750	400	Not recommended
250/3	1050	900	750	500	Not recommended
315/2	900	900	750	450	Not recommended
315/3	1200	1050	1050	750	450
315/4	1350	1200	1050	750	600
400/2	1200	1050	900	750	500
400/3	1200	1050	1050	750	500
400/4	1500	1500	1350	900	750
400/5	1800	1650	1500	1200	900
500/2	1200	1050	1050	750	600
500/3	1200	1050	1050	750	600
500/4	1650	1500	1500	1200	900
500/5	1800	1800	1800	1500	1350
630/2	1350	1350	1350	1200	1050
630/3	1650	1500	1500	1350	1200
630/4	1350	1200	1200	1050	900
630/5	1500	1350	1350	1200	1050
800/2	1350	1200	1200	1050	750
800/3	1800	1650	1500	1200	750
800/4	2200	1650	1500	1500	1200
800/5	1500	2500	2200	1800	1500
1000/3	2200	1650	1500	1200	1050
1000/4	2500	1800	1800	1500	1350
1000/5	2500	2500	2200	1800	1500
1250/3	2200	1800	1800	1350	1200
1250/4	2500	2200	2200	1650	1500
1250/5	2500	2500	2500	1800	1800
1600/4	2500	2500	1800	1800	1800
1600/5	2500	2500	2500	2200	1800



# SELECTION OF COVER RUBBER

## SELECTION OF COVER RUBBER ON SERVICE CONDITION

The most suitable rubber should be selected according to the type and size

of materials being transported and the operating condition of the belt such as impact height, impact conditions and belt life etc.

GENERAL SERVICE							
Cover Rubber Grade	Application Grade	Application			Physical Properties		
		Characteristics	Reference Material	Material Temp. Range	Min. Tensile Strength	Min. Elongation	Max. Abrasion
M	DIN-X BS-M24 RMA -1 AS-M SABS-1173	Not only high tensile strength, but also superior in abrasion, cut and gauge resistance. Suitable for transporting sharp and rugged material. Black.	Iron ore Copper ore Stone Rock Etc.	45°C (50°F) to 60°C (140°F)	250kg/cm <sup>2</sup> (3,550 PSI)	450%	120mm <sup>3</sup>
N	DIN-W BS-N 17 JIS -S AS-N SABS 1173	Most widely used abrasion resistant cover. Suitable for transporting moderately abrasive materials. Black.	Lime Stone Coal Etc.	35°C (30°F) to 60°C (140°F)	180kg/cm <sup>2</sup> (2,550 PSI)	400%	150mm <sup>3</sup>
	DIN-Y	Most widely used abrasion resistant cover. Suitable for transporting moderately abrasive materials. Black.	Lime Stone Coal Etc.	45°C (50°F) to 60°C (140°F)	200kg/cm <sup>2</sup> (2,800 PSI)	400%	150mm <sup>3</sup>
	JIS-A (Japanese standard grade)	Our standard cover rubber. Most widely used abrasion resistant cover rubber. Black.	Lime Stone Coal Etc.	35°C (30°F) to 60°C (140°F)	140kg/cm <sup>2</sup> (2,000 PSI)	400%	250mm <sup>3</sup>

SUPER WEAR RESISTANCE							
Cover Rubber Grade	Application Grade	Application			Physical Properties		
		Characteristics	Reference Material	Material Temp. Range	Min. Tensile Strength	Min. Elongation	Max. Abrasion
SWR	JIS-A	Super wear resistance cover rubber. Suitable for transporting excellent wear materials. Black.	Foundry Sand etc.	45°C (50°F) to 60°C (140°F)	140kg/cm <sup>2</sup> (2,000 PSI)	400%	90mm <sup>3</sup>

## REMARKS

- Testing method of abrasion: DIN53516
- When you require other covers, please consult us





# BELT WEIGHT AND DIAMETERS



BELT CONVERSION WEIGHT																		
Belt width (mm)	Total belt thickness (mm) - Aprox. kg/m																	
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
300	1.9	2.3	2.6	3	3.3	3.7	4.2	4.5	4.9	5.2	5.6	6	6.4	6.8	7.1	7.5	8.2	8.9
350	2.2	2.6	3	3.5	4	4.4	4.8	5.2	5.7	6.1	6.6	7	7.4	7.9	8.3	8.7	9.6	10.5
400	2.5	3	3.5	4	4.5	5	5.5	6	6.4	7	7.5	8	8.5	8.9	9.5	10	11	12
450	2.8	3.3	4	4.5	5	5.6	6.1	6.8	7.3	7.9	8.4	8.9	9.6	10	11	11.2	12	14
500	3.1	3.7	4.3	5	5.6	6.2	6.9	7.5	8.1	8.7	9.4	10	11	11.2	11.9	12.5	13.7	15
550	3.4	4.2	4.8	5.5	6.1	6.9	7.6	8.2	8.9	9.6	10.2	11	11.7	12.4	13	13.7	15	16.4
600	3.7	4.5	5.2	6	6.7	7.5	8.2	8.9	9.8	10.5	11.2	12	12.7	13.5	14.2	15	16.4	18
650	4	4.9	5.7	6.4	7.3	8.1	8.9	9.8	10.5	11.3	12.1	13	13.8	14.6	15.4	16.2	17.9	19.4
700	4.3	5.2	6.1	7	7.9	8.7	9.3	10.5	11.3	12.3	13.1	13.9	14.9	15.7	16.6	17.4	19.2	21
750	4.7	5.6	6.6	7.5	8.4	9.4	10.3	11.2	12.2	13.1	14	14.9	16	16.8	17.8	18.7	20.6	22.5
800	5	6	7	8	8.9	10	11	12	13	13.9	15	16	17	18	19	19.9	21.9	23.9
900	5.6	6.8	7.9	8.9	10	11.2	12.3	13.5	14.6	15.7	16.8	18	19.1	20.1	21.3	22.4	24.7	36.9
1000	6.6	7.5	8.7	10	11.2	12.5	13.7	15	16.2	17.5	18.7	20	21.3	22.5	23.7	25	27.5	28
1200	7.5	8.9	10.5	12	13.5	15	16.4	18	19.4	21	22.5	24	25.5	26.9	28.5	30	33	36
1350	8.4	10.1	11.8	13.5	15.2	16.8	18.6	20.3	21.9	23.6	25.3	27	28.7	30.4	32	33.8	37.1	40.5
1400	8.7	10.5	12.3	13.9	15.7	17.5	19.2	21	22.8	24.4	26.5	28	29.7	31.4	33.3	34.9	38.5	41.5
1500	9.4	11.3	13.1	15	16.8	18.8	20.6	22.5	24.4	26.3	28.1	30.3	31.8	33.8	35.6	37.5	41.3	45
1600	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44
1800	11.25	13.5	15	18	20.3	22.5	24.8	27	29.3	31.5	33.8	36	38.3	40.5	42.8	45	47.3	49.5
2000	12.5	15	17.5	20	22.5	25	27.5	30	32.5	35	37.5	40	42.5	45	47.5	50	52.5	55
2200	13.8	16.5	19.3	22	24.8	27.5	30.3	33	35.8	38.5	41.3	44	46.8	49.5	52.3	55	57.8	60

DIAMETER OF BELTING IN ROLLS - READY FOR DELIVERY														
Belt length (m)	Drum core diameter OK = 0.2 m Belt thickness d = mm							Drum core diameter OK = 0.5 m Belt thickness d = mm						
	4	6	8	10	12	14	16	18	20	22	24	26	28	30
10	0.3	0.34	0.38	0.41	0.44	0.65	0.67	0.69	0.71	0.73	0.75	0.76	0.78	0.78
20	0.38	0.44	0.49	0.54	0.59	0.78	0.81	0.84	0.87	0.9	0.93	0.96	0.98	1.01
40	0.49	0.59	0.67	0.74	0.81	0.98	1.03	1.08	1.13	1.17	1.21	1.25	1.29	1.33
60	0.59	0.71	0.81	0.9	0.98	1.15	1.21	1.27	1.33	1.39	1.44	1.49	1.54	1.59
80	0.67	0.81	0.93	1.03	1.12	1.29	1.37	1.44	1.51	1.58	1.64	1.7	1.76	1.82
100	0.74	0.9	1.03	1.15	1.25	1.42	1.51	1.59	1.67	1.75	1.81	1.89	1.95	2.02
120	0.81	0.98	1.12	1.25	1.39	1.55	1.64	1.73	1.82	1.9	1.98	2.06	2.13	2.2
140	0.87	1.05	1.21	1.35	1.48	1.66	1.76	1.86	1.95	2.04	2.13	2.21	2.29	2.37
160	0.92	1.12	1.28	1.43	1.57	1.75	1.87	1.97	2.07	2.17	2.26	2.35	2.44	2.53
180	0.98	1.19	1.37	1.53	1.67	1.86	1.98	2.09	2.2	2.3	2.4	2.49	2.58	2.67
200	1.03	1.25	1.44	1.61	1.76	1.96	2.08	2.2	2.31	2.42	2.52	2.62	2.72	2.81
220	1.08	1.31	1.51	1.69	1.84	2.04	2.18	2.30	2.42	2.53	2.64	2.74	2.84	2.94
260	1.17	1.42	1.64	1.83	2	2.21	2.35	2.49	2.62	2.75	2.86	2.98	3.09	3.2
280	1.21	1.47	1.7	1.9	2.08	2.29	2.44	2.58	2.72	2.84	2.97	3.08	3.19	3.3
300	1.25	1.53	1.76	1.97	2.15	2.37	2.52	2.67	2.81	2.94	3.07	3.19	3.31	3.42
320	1.29	1.58	1.81	2.03	2.22	2.44	2.6	2.75	2.9	3.04	3.16	3.3	3.41	3.53
340	1.33	1.62	1.87	2.09	2.29	2.51	2.68	2.84	2.99	3.12	3.26	3.39	3.52	3.64
360	1.37	1.67	1.93	2.15	2.36	2.58	2.75	2.92	3.07	3.21	3.36	3.49	3.62	3.74
380	1.41	1.72	1.98	2.21	2.42	2.65	2.83	3	3.15	3.3	3.45	3.58	3.72	3.84
400	1.44	1.76	2.03	2.27	2.48	2.72	2.9	3.07	3.26	3.37	3.53	3.69	3.81	3.94

# CONVEYOR PROBLEM SOLVING



Problem		Cause and Remedy					
A	Conveyor runs to one side at given point on structure.	5	4	1	2	3	44
B	Particular section of belt runs to one side at all points of conveyor.	6	7	-	-	-	-
C	Belt runs to one side for long distances or entire conveyor length.	39	8	5	1	2	3
D	Belt runs off at tail pulley.	39	10	1	-	-	-
E	Belt runs off at head pulley.	33	10	1	3	-	-
F	Belt slips.	34	33	31	10	-	-
G	Belt slips on starting.	34	31	33	-	-	-
H	Excessive belt stretch.	41	42	43	12	32	35
I	Grooving, gouging or stripping of top cover.	13	14	15	16	-	-
J	Excessive top cover wear, uniform around belt.	19	20	10	8	36	-
K	Severe, pulley cover wear.	4	9	10	17	11	27

Problem		Cause and Remedy					
L	Longitudinal grooving or cracking of bottom cover	4	10	9	33	-	-
M	Covers harden or crack	23	37	-	-	-	-
N	Covers swell in spots or streaks	21	-	-	-	-	-
O	Belt breaks at or behind fasteners; fasteners pull out	24	22	12	23	-	-
P	Vulcanized splice separation	38	10	40	7	-	-
Q	Excessive edge wear - broken edges	8	10	40	7	-	-
R	Transverse breaks at belt edge.	18	25	26	-	-	-
S	Short breaks in carcass parallel to belt edge, star breaks in carcass.	16	17	-	-	-	-
T	Ply separation.	29	30	23	-	-	-
U	Carcass fatigue at idler junction.	25	26	27	28	29	-
V	Cover blisters or sand blisters.	45	21	-	-	-	-

## CAUSES AND REMEDY

1. Idlers or pulleys cut-off square with centre line of belt. Re-adjust in affected area.
2. Conveyor frame of structure crooked. Straighten affected area.
3. Idler stands not centered on belt: readjust in affected area.
4. Sticking idlers: free idlers and improve maintenance and lubrication.
5. Build up of material on idlers: remove accumulation; improve maintenance, install scrapers or other cleaning devices.
6. Belt not joined squarely; remove affected splice and re-splice.
7. Bowed belt: for new belt this condition should disappear during break-in, in rare instances belt must be straightened or replaced; check storage and handling of belt rolls.
8. Off centre loading or poor loading: adjust chute to replace load on centre of belt; discharge material in direction of belt travel at or near belt speed.
9. Slippage on drive pulley: increase tension through screw take up or add counterweight; lag drive pulley; increase angle of wrap.
- 10: Material spillage and build-up: improve loading and transfer condition; install cleaning devices, improve maintenance.
11. Bolt heads protruding above lagging: tighten bolts; replace lagging; use vulcanized lagging.
12. Tension too high: increase speed; same tonnage; reduce friction with better maintenance and replacement of damaged idlers; decrease tension by increasing angle of wrap or install pulley lagging. Reduce CWT to minimum amount.
13. Skirt-board improperly adjusted or wrong material: adjust skirt-board supports to minimum 25mm between metal and belt with gap increasing in direction of belt travel; use skirting rubber (not old belt).
14. Impact of material under loading area: install cushion idlers.
15. Material hanging up in or under chute: improve loading to reduce spillage; install baffles; widen chute.
16. Impact of material on belt: reduce impact by improving chute design; install impact idlers.
17. Material trapped between belt and pulley: install plows or scrapers on return in front of tail pulley.
18. Belt edges folding up on structure: same corrections as 1, 2, 3, install limit switches; provide more clearance.
19. Dirty, stuck or misaligned return idler rolls: remove accumulations; install cleaning devices; use self cleaning return idler rolls; improve maintenance and lubrication.
20. Cover quality too low: replace with belt of heavier cover gauge or higher quality rubber.

21. Spilled oil or grease: over lubrication of idlers; improve housekeeping; reduce quantity of grease used; check grease seals.
22. Wrong type of fasteners. Too tight or too loose: use proper fasteners and splice technique. Set up schedule for regular fasteners inspections.
23. Heat or chemical damage: use belt designed for specific condition.
24. Fastener plates too long for pulley size: replace with smaller fasteners; increase pulley size.
25. Improper transition between troughed belt and terminal pulleys: adjust transition.
26. Severe convex (hump) vertical curve: decrease idler spacing in curve; increase curve radius.
27. Excessive forward tilt of trough idler rolls: reduce forward tilt of idlers to no more than 2 from vertical.
28. Excess gap between idler rollers: replace with heavier belt.
29. Insufficient transverse stiffness: replace with the proper belt.
30. Pulleys too small: use larger diameter pulleys.
31. Counterweight too light: add counterweight or increase screw take-up tension to value determined from calculations.
32. Counterweight too heavy: lighten counterweight to value required by calculations.
33. Pulley lagging worn: replace pulley lagging.
34. Insufficient traction between belt and pulley: lag drive pulley; increase belt wrap; install belt cleaning device.
35. Insufficient belt tension: re-calculate belt tensions and select proper belt.
36. Excessive sag between idlers causing load to work and shuffle on belt as it passes over idlers; increase tension if unnecessarily low; reduce idler spacing.
37. Improper storage or handling.
38. Belt improperly spliced: re-splice using proper method.
39. Belt running off-centre around the tail pulley and through the loading area: install training idlers on the return run prior to tail pulley.
40. Belt hitting structure: install training idlers on carrying and return run.
41. Improper belt installation causing apparent excessive belt stretch: pull belt through counterweight with tension equal to at least empty running tension; run belt in with mechanical fasteners.
42. Improper initial positioning of counterweight in its carriage cause excessive belt stretch.
43. Insufficient counterweight travel.
44. Structure not level: level structure in affected area.
45. Cuts on the belt cover. Punctures allow fines to penetrate between the cover and the carcass, causing damage. Make spot repairs with a vulcanizer or self curing repair material.

# SPLICING PRESS

